PLEASE SCAN FOR THE RECORD

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	**MAIL STOP AMENDMENT**
Martin Dybendal Nielsen et al.	Group Art Unit: 2883
Application No.: 10/599,057	Examiner: Brian Healy
Filed: September 19, 2006	Confirmation No.: 3650
For: OPTICAL COUPLER DEVICES, METHODS OF THEIR PRODUCTION AND USE	

AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated July 8, 2008, please amend the above-identified patent application as follows:

Arguments/ Amendments Sufficient to overcome Applied Reference.
BH/ 1/7/09

REMARKS

The Examiner is thanked for the examination of the application. In view of the foregoing amendments and the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

Claims 1-4, 6-9, 11, 13, 15, 16, 18, 20, 25, 35, 43-45, 107-108, and 111-128 are pending. Claims 113-128 are new.

Claims 1 – 9, 11, 13, 15, 16, 18, 20, 43 – 45, 100 – 102, 104 – 107, and 109 have been rejected under 35 USC 102(b) as being allegedly anticipated by US 2002/0114574, hereinafter *Chandalia*.

Claim 1

The present application relates to a tapered optical fiber in which light can be coupled from an inner core to an outer core and *vice versa*. The optical fiber according to claim 1 of the present application comprises a first section with a first fiber cross section with a first cross sectional area and a second fiber cross section with a second cross sectional area, said first and seconds fiber cross sections being separated by a tapered fiber section. In both the first and the second fiber cross sections, the fiber comprises a first core region with a refractive index profile and a second core region with a refractive index profile. The refractive index profiles of the two core regions in the first and second fiber cross sections are so that beam expansion occurs when light propagates from the first fiber cross section to the second fiber cross section. The mode field diameter in the first fiber cross section

(MDF_1) is thus smaller than or equal to the mode field diameter in the second fiber cross section (MDF_2), i.e. $(MDF_1) \leq (MDF_2)$.

The first and second fiber cross sections each comprise two core regions that are capable of confining and guiding light, the second core region being surrounded by a cladding region.

Figures 1b and 1c of *Chandalia*, with the accompanying description in paragraphs [0020], [0021] and [0031], describe a tapered microstructured fiber, wherein the cross sectional area of the second fiber cross section (the tapered end, section 24 in Figure 1b) is smaller than the cross sectional area of the first fiber cross section (the untapered end, section 20 in Figure 1b). However, it is specified in lines 6 - 8 of paragraph [0021] of *Chandalia* that mode contraction occurs due to the tapering. This paragraph refers to Example 1, where it, in paragraph [0033,] is described that the mode diameter decreases from 10 microns at the first fiber cross section to 3 microns at the second fiber cross section in the down tapered part of the fiber. *Chandalia* thus teaches a fiber wherein $(MDF_1) > (MDF_2)$.

As described above, claim 1 of the present application relates to fibers, wherein the mode field diameter at the first cross section (MFD_1) is smaller than or equal to the mode field diameter at the second cross section (MFD_2) i.e. $(MDF_1) \leq (MDF_2)$.

Chandalia describes in Figure 2 and paragraphs [0024] - [0025] that it is possible to provide mode expansion by tapering the fiber in a manner, whereby the cladding features (axially oriented elements) disappear. Thereby the silica cladding has no confining features that can guide the light and the beam expands so that $(MDF_1) < (MDF_2)$. In contrast, the fiber according to claim 1 of the present

application comprises cladding features in both the first and the second fiber cross section: ".. the cross sectional dimensions d and mutual centre to centre distances Λ_0 are adapted ... ". The cladding features are adapted; not removed. Thus, the fiber according to the present invention cannot be said to be anticipated by Figure 2 of *Chandalia*. *Chandalia* does not disclose an optical fiber for beam expansion, wherein the first and the second fiber cross sections comprise a cladding region comprising a multitude of longitudinally extending spaced apart microstructural holes (the cladding features). The fiber according to pending claim 1 and all claims dependent thereon are therefore not anticipated by *Chandalia*

Claim 113

New claim 113 claim includes the features of claim 5 and 100, and thus recites "a fiber comprising an intermediate region surrounding the first core region and being surrounded by the second core region". The fiber according to *Chandalia* does have an intermediate tapered region, but no such intermediate region according to the new claim 113.

New claim 113 and all claims dependent thereon are thus not anticipated by Chandalia.

Claim 121

New claim 121 discloses the features of claim 5 and 103, and thus represents allowable subject matter as concluded by the Examiner in the office action. The claims dependent thereon are also allowable at least by virtue of their dependence from claim 121.

In the event that there are any questions concerning this Amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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Date: November 10, 2008

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